

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-67. (Cancelled)

68. (Currently Amended) A blend of recycled thermoplastic resinresins, comprising:
about 20 to about 99.9 parts by weight of one or more polymers of a primary
polymer type selected from one of ABS, HIPS, PP and PC;

about 0.1 to about 40 parts by weight of residual additives including two or more
additives selected from the group consisting of antioxidants, heat stabilizers, UV stabilizers,
flame retardants, antistatics, blowing agents, impact modifiers, compatibilizers, fillers, fiber
reinforcements, fluorescent whiteners, and lubricants; and

one or more polymers of one or more secondary polymer types that are dissimilar
to the primary polymer type and are selected from recycled impact modified styrene acrylonitrile
copolymers, blends of polycarbonate with an impact modified styrene acrylonitrile copolymer,
copolymer blends of styrene acrylonitrile and acrylate polymers, polysulfone, copolymers of
styrene and acrylonitrile, polycarbonate, polyvinyl chloride, polyurethane, high impact styrene
copolymers, general purpose polystyrene and polyolefin;

; the one or more polymers of secondary polymer types including one or more of
from 0 to about 79 parts by weight of one or more polymers of one or more secondary polymer
types that are compatible with the first polymer type or from 0 to about 40 parts by weight of one
or more polymers of one or more second polymer types that are incompatible with the first
polymer type;

wherein the polymers of the primary polymer type or the secondary polymer types
makes up between about 20 and 99.9 parts by weight of the blend and include two or more

grades of polymers the primary polymer, wherein different grades are characterized by different molecular weights, different molecular composition, different polymer structure or morphology; the blend of recycled thermoplastic resins includes a greater amount of the primary polymer type than the secondary polymer type, the residual additives make up about 0.1 to 40 parts by weight of the blend and the recycled thermoplastic resin is recovered from waste plastic material derived from one or more post consumer sources selected from office automation equipment, white goods, consumer electronics, automotive shredder residue, building waste and post industrial molding and extrusion scrap,

wherein the blend is a thermoplastic resin having at least one uniform predetermined property selected from the group consisting of melt flow rate and density.

69. (Canceled)

70. (Previously Presented) The resin of claim 68, wherein one or more of the polymers of the primary or secondary polymer types exhibits detectible oxidation resulting from aging.

71. (Previously Presented) The resin of claim 68, wherein the residual additives include bromine and antimony, where the ratio of bromine to antimony is between about 1:1 and 10:1, and the bromine and the antimony are present at combined levels of about 1 ppm to about 5% by weight.

72. (Previously Presented) The resin of claim 68, wherein the residual additives include titanium dioxide at levels between about 0.5% by weight and about 5% by weight.

73. (Previously Presented) The resin of claim 68, wherein the residual additives include carbon black at levels between about 0.1% by weight and about 3% by weight.

74. (Previously Presented) The resin of claim 68, wherein the residual additives

include one or more additional pigments or organic dye colorants at levels between about 1 ppm by weight and about 0.1% by weight.

75. (Previously Presented) The resin of claim 68, wherein the residual additives include two or more elements selected from the group consisting of Cd, Pb, Hg, Cr and Ni, the one or more elements being present at levels between about 0.1 ppm and 100 ppm.

76. (Canceled)

77. (Currently Amended) The resin of claim 68, wherein:
the one or more polymers of the primary polymer type include an impact modified styrene acrylonitrile copolymer is ABS, which make up that comprises about 80 to about 99 parts by weight of the resin;
a first polymer of the one or more secondary polymer types is a styrene acrylonitrile copolymer that comprises about 0 to about 19 parts by weight of the resin;
the residual additives comprise about 2 to about 7 parts by weight of the resin;
and
a second polymer of the one or more secondary polymer types comprises about 0 to about 7 parts by weight of the resin.

78. (Previously Presented) The resin of claim 77, wherein the resin has the following properties:

a density of about 1.06 to about 1.10 grams per cubic centimeter, as determined by ASTM D 792;

a melt flow rate of about 2 to about 9 grams per 10 minutes, as determined by ASTM D 1238;

a tensile stress at yield of about 36 to about 48 MPa, as determined by ASTM D 638; and

a notched Izod impact (3.2 mm notch) of about 85 to about 200 Joules per meter,

as determined by ASTM D 256.

79. (Currently Amended) The resin of claim 77, wherein:

one or more of the polymers of the ~~primary~~ or secondary polymer types are a blend of polycarbonate with an impact modified styrene acrylonitrile copolymer, a copolymer blend of styrene acrylonitrile and acrylate polymers, a polysulfone, a copolymer of styrene and acrylonitrile, polycarbonate, polyvinyl chloride, or polyurethane.

80. (Canceled)

81. (Currently Amended) The resin of claim 77, wherein at least one polymer of the one or more secondary polymer types is a ~~HIPS polymer~~ high impact styrene copolymer polymer, where the ~~HIPS polymer~~ high impact styrene copolymer is present in the resin in a substantial amount to achieve a user selected notched izod impact strength.

82. (Currently Amended) The resin of claim 68, wherein:

~~the one or more polymers of the primary polymer type includes~~ is an impact modified styrene polymer that comprises about 70 to about 99 parts by weight of the resin;
a first polymer of the one or more secondary polymer types is a general purpose polystyrene that comprises about 0 to about 10 parts by weight of the resin;
the residual additives comprise about 1 to about 5 parts by weight of the resin;
and
a second polymer of the one or more secondary polymer types comprises 0 to about 29 parts by weight of the resin.

83. (Canceled)

84. (Previously Presented) The resin of claim 82, wherein said resin has the following properties:

a density of about 1.04 to about 1.08 grams per cubic centimeter, as determined by ASTM D 792;

a melt flow rate of about 2 to about 8 grams per 10 minutes, as determined by ASTM D 1238;

a tensile stress at yield of about 20 to about 27 MPa, as determined by ASTM D 638; and

a notched Izod impact of about 60 to about 120 Joules per meter, as determined by ASTM D 256.

85. (Currently Amended) The resin of claim 68, wherein:

~~the one or more polymers of the primary polymer type includes a polypropylene~~
PP that comprises about 88 to about 99 parts by weight of the resin;

a first polymer of the one or more secondary polymer types comprises 0 to about 5 parts by weight of the resin;

the residual additives comprise about 1 to about 5 parts by weight of the resin;

a second polymer of the one or more secondary polymer types comprises 0 to about 7 parts by weight of the resin; and

the resin has distinct melting points at about 125°C and at about 164°C.

86. (Canceled)

87. (Previously Presented) The resin of claim 85, wherein said resin has the following properties:

a density of about 0.92 to about 0.96 grams per cubic centimeter, as determined by ASTM D 792;

a melt flow rate of about 20 to about 30 grams per 10 minutes, as determined by ASTM D 1238;

a tensile stress at yield of about 20 to about 28 MPa, as determined by ASTM D 638; and

a notched Izod impact (3.2 mm notch) of about 50 to about 100 Joules per meter, as determined by ASTM D 256.

88. (Previously Presented) The resin of claim 68, wherein:
the one or more polymers of the primary polymer type include a polycarbonate that comprises about 20 to about 98 parts by weight of the resin;
a first polymer of the one or more secondary polymer types comprises 0 to about 93 parts by weight of an impact modified styrene acrylonitrile copolymer;
the residual additives comprise about 2 to about 10 parts by weight of the resin;
and
a second polymer of the one or more secondary polymer types comprises 0 to about 10 parts by weight of the resin.

89.-91. (Canceled)

92. (Currently Amended) A method of preparing a recycled plastic material, comprising:
providing waste plastic material from one or more sources, wherein the sources are office automation equipment, white goods, consumer electronics, automotive shredder residue, building waste and post industrial molding and extrusion scrap, wherein the waste plastic material includes two or more dissimilar plastic types and contains non-plastic contaminants and the waste plastic material includes two or more dissimilar plastic types and contains non-plastic contaminants;
separating the waste plastic material into a plurality of fractions, wherein each fraction includes multiple grades of a primary polymer type, selected from one of ABS, HIPS, PP and PC, and one or more secondary polymer types selected from recycled impact modified styrene acrylonitrile copolymers, blends of polycarbonate with an impact modified styrene acrylonitrile copolymer, copolymer blends of styrene acrylonitrile and acrylate polymers, polysulfone, copolymers of styrene and acrylonitrile, polycarbonate, polyvinyl chloride,

polyurethane, high impact styrene copolymers, general purpose polystyrene and polyolefin, the primary polymer type is different from the secondary polymer type and a fraction includes mostly the primary polymer type with a lesser amount of the secondary polymer type, and different grades are characterized by different molecular weights, different molecular composition, different polymer structure or morphology, into two or more primary groups of plastic materials;

determining amounts of a first group of the primary groups of plastic materials and at least one other plastic material to provide one or more predetermined properties of a recycled plastic material; and

_____ combining the first group of the primary groups of plastic materials and the at least one other plastic material in the determined amounts to provide the recycled plastic material

_____ blending at least a first fraction to provide a recycled plastic material having at least one uniform predetermined property selected from the group consisting of melt flow rate and density.

93. (Currently Amended) The method of claim 92, wherein further comprising combining at least one other fraction with the first fraction prior to blending the first group of the primary groups of plastic materials and the at least one other plastic material includes combining the first group of the primary groups of plastic materials with a second group of the one or more primary groups of plastic materials.

94. (Currently Amended) The method of claim 92, further comprising:
separating a second group of the one or more primary groups of plastic materials one of the fractions into a two or more secondary groups of plastic materials;
whercin the step of combining the first group of the primary groups of plastic materials and the at least one other plastic material blending includes combining the first group of the primary groups of plastic materials blending the first fraction with a group of the secondary groups of plastic materials.

95. (Currently Amended) The method of claim 92, wherein combining the first group

~~of primary groups of plastic materials and the at least one plastic material~~ blending includes combining the ~~first group of of primary groups of plastic materials~~ blending the first fraction with a virgin plastic.

96. (Currently Amended) The method of claim 92, wherein ~~combining the first group of primary groups of plastic materials and the at least one plastic material~~ blending includes combining at least two plastic materials where each plastic is of a different primary polymer type.

97. (Currently Amended) The method of claim 92, wherein ~~at the first group of primary groups of plastic materials~~ when the first fraction includes a primary polymer type and a second ~~group of primary groups of plastic materials~~ fraction includes the primary polymer type, the first ~~group~~ fraction is distinguishable from the second ~~group~~ fraction based on one or more properties of the ~~primary group of plastic material~~ first fraction.

98. (Previously Presented) The method of claim 92, further comprising compounding an additive or a polymer with the recycled plastic material.

99. (Currently Amended) The method of claim 92, wherein further comprising determining amounts of the first fraction and at least one other plastic material to provide the uniform predetermine property includes including determining amounts of a first type of ABS material and a second type of ABS material that are combined to form a recycled plastic material having a notched izod impact strength higher than the notched izod impact strength of both the first type of ABS material and the second type of ABS material.

100. (Currently Amended) The method of claim 92, wherein further comprising determining amounts of the first fraction and at least one other plastic material to provide the uniform predetermine property includes including determining amounts of an ABS material and a HIPS material that are combined to form a recycled plastic material having an increased tensile

strength relative to a tensile strength of the HIPS material.

101. (Currently Amended) The method of claim 92, ~~wherein~~ further comprising determining amounts of the first fraction and at least one other plastic material to provide the uniform predetermine property ~~includes~~ including determining amounts of a modified PPO material and a HIPS material that are combined to form a recycled plastic material having an increased notched izod impact strength and tensile strength and decreased melt flow rate relative to the HIPS material.

102. (Currently Amended) The method of claim 92, ~~wherein~~ further comprising determining amounts of the first fraction and at least one other plastic material to provide the uniform predetermine property ~~includes~~ including determining amounts of an ABS material and a PC material that are combined to form a recycled plastic material having an increased notched izod impact strength and tensile strength relative to the ABS material.

103. (Currently Amended) The method of claim 92, ~~wherein~~ further comprising determining amounts of the first fraction and at least one other plastic material to provide the uniform predetermine property ~~includes~~ including determining amounts of an ABS material and a regrind flame retarded PC material that are combined to form a recycled plastic material having an increased tensile strength relative to the ABS material.

104. (Currently Amended) The method of claim 92, ~~wherein~~ further comprising determining amounts of the first fraction and at least one other plastic material to provide the uniform predetermine property ~~includes~~ including determining amounts of an ABS material and a PC/ABS material that can be combined to form a recycled plastic material having an increased notched izod impact strength and tensile strength relative to the ABS material.

105. (Currently Amended) The method of claim 92, ~~wherein~~ further comprising determining amounts of the first fraction and at least one other plastic material to provide the

uniform predetermine property includes including determining amounts of grades of ABS materials to form a recycled plastic material with a predetermined SAN content, wherein the predetermined SAN content is sufficient to achieve one or more predetermined properties, the properties including one of environmental stress crack resistance, tensile strength, impact strength, melt flow rate of the recycled plastic material.

106. (Currently Amended) The method of claim 92, wherein further comprising determining amounts of the first fraction and at least one other plastic material to provide the uniform predetermine property includes including determining amounts of a first type of ABS material and a second type of ABS material that are combined to form a recycled plastic material having a notched izod impact strength higher than the notched izod impact strength of the first type of ABS material lower than the second type of ABS material.

107. (Currently Amended) The method of claim 92, further comprising:
selecting a secondary polymer that is compatible with the primary polymer type at least one of the plurality of primary groups of plastic materials and the at least one other plastic material; and

combining blending the secondary polymer with the at least one of the plurality of primary groups of plastic materials and the at least one other plastic material first fraction.

108. (Currently Amended) The method of claim 107, wherein:
determining amounts of at least one of the plurality of primary groups of plastic materials includes determining amounts of polypropylene; and
selecting a secondary polymer includes selecting polypropylene, a low density polyethylene or a polymer with which polypropylene is compatible.

109. (Currently Amended) The method of claim 107, wherein:
determining amounts of at least one of the plurality of primary groups of plastic materials includes determining amounts of polycarbonate; and

selecting a secondary polymer includes selecting polycarbonate, PC/ABS, an acrylonitrile butadiene styrene terpolymer, an acrylonitrile styrene acrylate copolymer or another polymer with which polycarbonate is compatible.

110. (Currently Amended) The method of claim 107, wherein:
~~determining amounts of at least one of the plurality of primary groups of plastic materials includes determining amounts of HIPS; and~~
selecting a secondary polymer includes selecting an impact modified styrene polymer, a general purpose polystyrene, a modified polyphenylene ether or another polymer with which HIPS is compatible.

111. (Previously Presented) The method of claim 92, further comprising forming a pellet from the recycled plastic material.

112. (Previously Presented) The method of claim 92, further comprising extruding a sheet of the recycled plastic material.

113. (Previously Presented) The method of claim 112 further comprising co-extruding the recycled plastic material with layers containing one or more polymers, including impact modified styrene acrylonitrile copolymer, blends of polycarbonate with an impact modified styrene acrylonitrile copolymer, copolymer blends of styrene acrylonitrile and acrylate polymers, polysulfone, copolymers of styrene and acrylonitrile, polycarbonate, polyvinyl chloride, polyurethane, high impact styrene copolymers or polyolefins.

114. (Previously Presented) The method of claim 92 further comprising co-injection molding the recycled plastic material with layers containing one or more polymers, including impact modified styrene acrylonitrile copolymer, blends of polycarbonate with an impact modified styrene acrylonitrile copolymer, copolymer blends of styrene acrylonitrile and acrylate polymers, polysulfone, copolymers of styrene and acrylonitrile, polycarbonate, polyvinyl chloride, polyurethane, high impact styrene copolymers or polyolefins.